

No. 841,913.

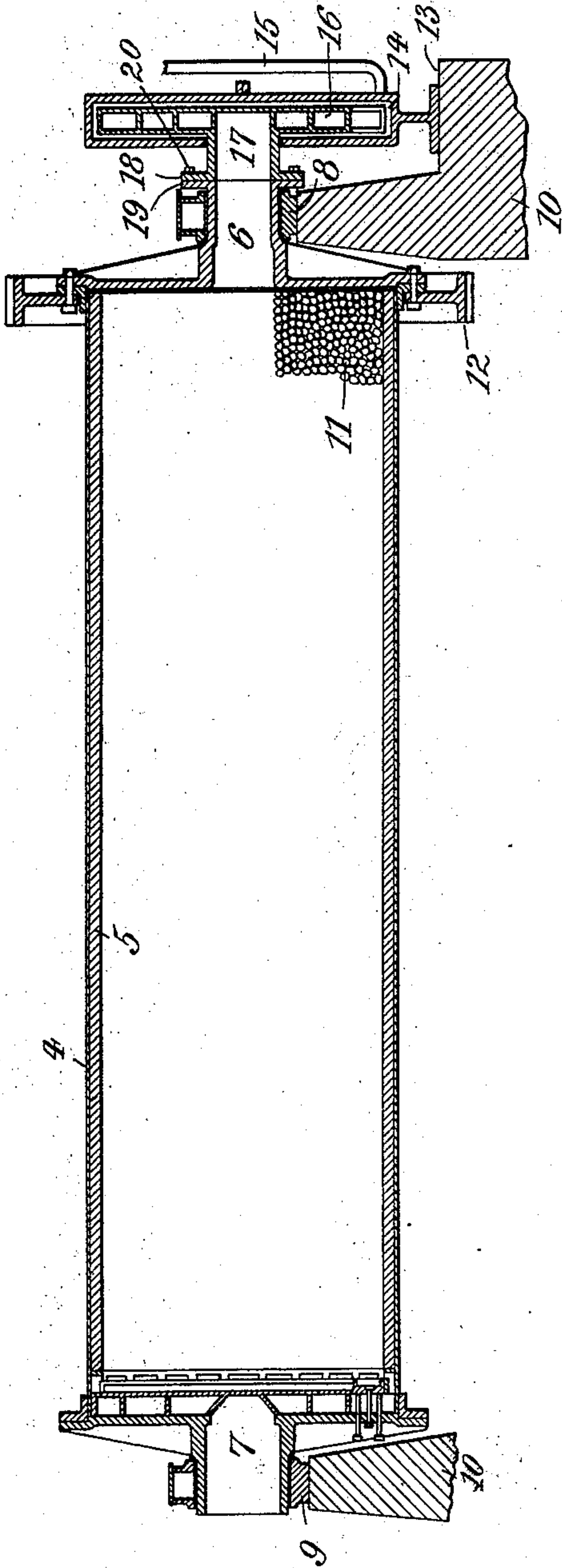
PATENTED JAN. 22, 1907.

M. F. ABBÉ.  
PEBBLE MILL.

APPLICATION FILED MAY 2, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:  
Arthur Zumpf.  
William Schulz.

Inventor:  
Max F. Abbé  
by Frank R. Biesse, Atty.

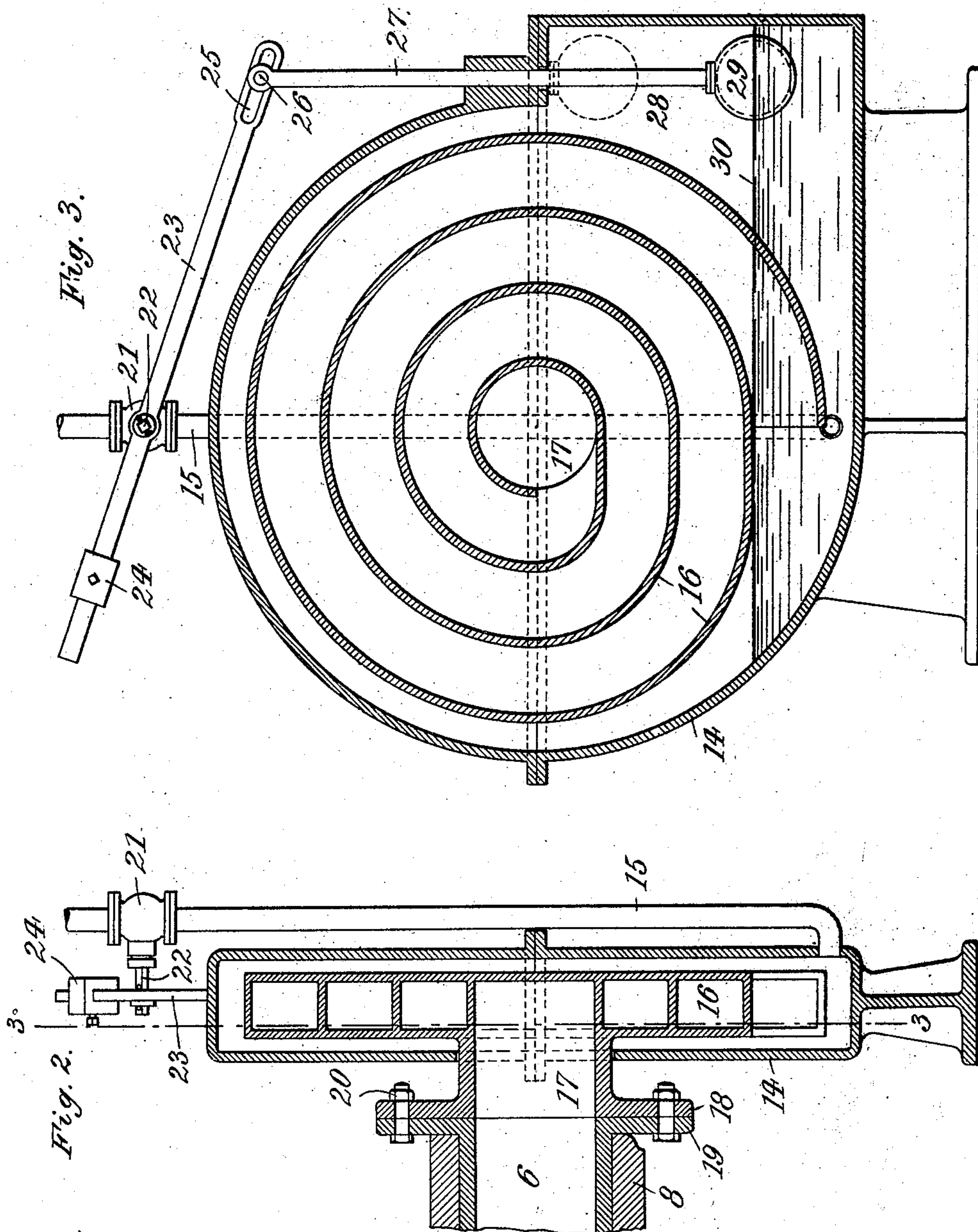
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William Schulz.

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Max F. Abbé  
by Frank P. Smead, Atty.



# UNITED STATES PATENT OFFICE.

MAX F. ABBÉ, OF NEW YORK, N. Y.

## PEBBLE-MILL.

No. 841,913.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed May 2, 1906. Serial No. 314,791.

*To all whom it may concern:*

Be it known that I, MAX F. ABBÉ, a citizen of the United States, residing at New York city, Manhattan, county and State of New York, have invented new and useful Improvements in Pebble-Mills, of which the following is a specification.

This invention relates to an improved pebble-mill, and more particularly to improved means for feeding the pulp or other material to be ground to the reducing-cylinder.

By my invention the feeding mechanism constitutes an attachment which is mounted exterior to the reducing-cylinder and communicates therewith by means of a hollow trunnion. The advantages of this construction are that the feeding device may be coupled to different forms of existing mills without changing their construction and that it may be readily repaired or replaced without opening the cylinder or disturbing its lining.

In the accompanying drawings, Figure 1 is a vertical longitudinal section through my mill with the bulk of the pebbles and the feed-regulator omitted; Fig. 2, an enlarged section through the feeder; and Fig. 3 a cross-section on line 3-3, Fig. 2.

The cylindrical body 4 of the mill is lined, as at 5, and is provided with hollow trunnions 6 and 7. These trunnions turn in bearings 8 and 9, supported on the foundation-piers 10. Cylinder 4 contains the reducing pebbles or balls 11 and is rotated by means of a circumferential toothed wheel 12, intergeared with the driving mechanism. (Not shown.) Opposite to inlet-trunnion 6 and outside of cylinder 4 there is mounted upon a step 13 of pier 10 a stationary feed-chamber 14, adapted to receive by feed-pipe 15 the pulp or other material to be ground. Chamber 14 contains a rotatable spiral conveyer 16, having convolutes of gradually-increasing diameters. Of these the innermost convolute is extended laterally to constitute a discharge-tube 17, projecting out of chamber 14. The flanged end 18 of this tube may be removably coupled to the flanged outer end 19 of trunnion 6 by bolts 20 or otherwise, so that the rotary movement of cylinder 4 is by trunnions 6 and tube 7 transmitted to conveyer 16. It

will be seen that chamber 14 as well as conveyer 16 are located wholly outside of cylinder 4 and that the cylinder and the conveyer are situated on opposite sides of bearing 8. In this way the conveyer and its charge balance somewhat the cylinder and its charge. The pulp or other material to be ground passes from pipe 15 into chamber 14 and is thence lifted by conveyer 16 into pipe 17, from which it is discharged through trunnion 6 into cylinder 4.

Means are provided for automatically regulating the quantity of pulp fed to the mill. These means consist of an inlet-valve 21 in the feed-pipe 15 to the plug 22 of which is attached a two-arm lever 23. One arm of this lever carries an adjustable counterweight 24, while its other arm is slotted, as at 25. Slot 25 admits a pin 26, projecting from the upper end of a rod 27, which passes into a pocket 28 of chamber 14. The lower end of rod 27 carries a float 29, influenced by the liquid contents 30 of chamber 14. When the inflow of the pulp unduly increases, the rising float will partly close valve 21, while when the inflow of the pulp unduly diminishes the valve 21 will be opened by the descent of the float.

The discharge end of the mill does not constitute part of the present invention.

It will be seen that the feeder comprising the chamber 14 and conveyer 16 are arranged entirely outside of the mill proper, and that they may be inspected, repaired, or replaced without opening the mill or interfering with its lining. In this way time is economized and labor saved, while, furthermore, the feeder may be coupled to various existing mills without changing their construction.

What I claim is—

1. A pebble-mill provided with a reducing-cylinder having a hollow trunnion, a stationary feed-chamber exterior to the cylinder, a spiral conveyer rotatable within said chamber and having convolutes of gradually-decreasing diameter, a discharge-tube extending from the innermost convolute out of said chamber, and means for connecting said tube to the outer end of the trunnion, substantially as specified.

2. A pebble-mill provided with a reducing-cylinder having a hollow trunnion, a feed-chamber exterior to the cylinder, an inclosed rotatable spiral conveyer, means for connecting said conveyer to the hollow trunnion, a feed-pipe entering the feed-chamber, a cock controlling said pipe, a float in the feed-chamber, and means for operatively connecting said float to the cock, substantially as specified. 10

Signed by me at New York city, (Manhattan,) New York, this 1st day of May, 1906.

MAX. F. ABBÉ.

Witnesses:

FRANK V. BRIESEN  
WILLIAM SCHULZ.